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THE Bureau of Economic and Business Research of the Temple University School of Business and Public Administration was organized to provide a vehicle for stimulating and coordinating analytical studies. Its primary objectives include (1) service to the alumni as well as to the faculty and students of the University by bringing to their attention pertinent developments in the world of business, and (2) service to business and government by making contributions to the solution of specific problems. To this end, the Bureau both carries on specialized research and publishes quarterly the **Economics and Business Bulletin**, containing some of the significant results of its current studies.

The reader's appraisal of the **Bulletin** and comments upon it are solicited. The Bureau also will appreciate receiving suggestions and requests for particular studies.

The opinions and views expressed in the articles contained in this **Bulletin** are those of the writers and cannot be construed as the official opinions or policies of the School of Business and Public Administration.

An Analysis of Philadelphians' Attitudes Toward Pay Television

by MYRON S. HEIDINGSFIELD*

The issues surrounding pay television are confused. Although several sample surveys indicating a favorable response to this programming idea have been conducted in various parts of the United States, a recent Philadelphia study suggests that, in this City, the attitude is generally opposed to pay television. Reasons for this opposition as well as the kinds of programs favored, and some other specific responses from among those who reportedly favored it are detailed in this article.

THE situation regarding pay television in the United States is confused. This is evidenced by the recent Federal Communications Commission ruling to hold in abeyance any decision on this problem for at least a year. The complexity of the problem is further heightened by a number of experiments which have been carried out during the past two or three years—many of which have not been too successful. Despite this, several sample surveys have been made by various groups throughout the country and each has indicated a generally favorable reaction to pay television. That these surveys may not be particularly indicative is evidenced by the results of a recent study made in Philadelphia, which suggests that Philadelphians are not in favor of this type of television.

The following article is the report of the eleventh annual research project of the Temple University Marketing Department which was conducted by the Market Research class of 1958.[1] This study probed the varying attitudes of Philadelphians as they were related to pay television and attempted to uncover some of the reasons which made them take a position for or against it.

THE PROBLEM

There are a number of facets to a complex problem such as this. However, in order to obtain basic information, it was decided to measure the attitude of Philadelphians toward pay television. The questionnaire, after proper testing, was designed to unearth favorable and unfavorable attitudes toward this method of television operation along with the reasons which seemed to determine the varying attitudes. In addition, the questionnaire was so designed as to obtain more information about those who were in favor of pay television — what they would like to see; how much they would be willing to pay; and, on which days and hours they would like to see it.

Methods of Study

The basis for the study was the listings in the Philadelphia telephone directory. From this source, a probability sample was constructed so that every home subscriber would have an equal chance of being called. A random sample of five hundred respondents was chosen in such a way as to assure representativeness of the subscribers' list. Inasmuch as interviews were to be conducted by telephone, business firms were excluded from the sample and interviewers were instructed to speak with any adult member of the preselected household.

Interviewing took place between 7 p.m. and 10 p.m. from May 15 to 17, 1958. If the telephone was not answered within one minute, interviewers were instructed to call back three times on different days and at different hours. In the event that a child answered, the interviewer was instructed to ask for an

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[1]The class roster included: Misses: C. Galluccio; S. Switkay; Messrs: J. Abramson; M. Alpert; P. Bacon; J. Bloch; F. Boesch; E. Bogosian; L. Brown; M. Cannon; J. Greenfield; J. Falkenstein. A. Feldscher; S. Lewis; A. Patlove; H. Schwartz; J. Shur; A. Widra; C. Williams.

adult and, if an adult was not available, the interviewer was asked to make arrangements to call back.

In those cases where telephone numbers were changed, interviewers were instructed to call the new number if it was in the Philadelphia County area. Out-of-town listings or discontinued numbers were reported as "not available." Refusals to respond were noted on the questionnaire and were included in the total.

During this entire interview period, a field supervisor maintained direct contact with all interviewers both to answer any questions and/or to handle any problem which might develop.

Questionnaire construction followed acceptable market research procedures. A topical outline was first drawn up and pretested among a subsample of respondents. Based upon an analysis of these data, a pretest questionnaire was constructed and tested among another subsample of respondents. From the findings in this preliminary work a final questionnaire, which became the data form used in the study, was prepared.

PAY TELEVISION

To minimize respondent bias, the first two questions in the instrument were directed toward eliciting information on whether the respondent's television set was turned on and, if so, to what channel it was tuned. This is a standard opening for any coincidental rating method and helps to establish the proper rapport between the interviewer and the respondent. Also, it immediately eliminates from the sample those people who do not own a television set. It was found that 55.8 percent of the sample called had their television sets on at the time of the interview. Approximately 39 percent did not have them on and the remainder (5.2 percent) indicated that they did not own a set.

Some 388 respondents were asked whether they had ever heard of pay television. Almost two-thirds of the group indicated that they had, while approximately a third reported that they had never heard of it. Only an insignificant percentage of the sample did not recall whether they had heard of it or not. When the data were classified by sex and totals computed for each of the categories, a larger proportion of males than females had some knowledge of pay television.

The startling fact about this study, which is in contradiction to the findings of many other studies, is that about 58 percent of the sample indicated that they were not in favor of pay television, while approximately 24 percent appeared to favor it. Some 18 percent took no position at all.

When the data were classified by sex, it was interesting to note that more of the males than females were in favor of pay television, and that a higher percentage of "don't knows" was found among the females.

REASONS FOR NOT FAVORING PAY TELEVISION

It should be recalled that more than one half of the sample was opposed to having pay television. When this group was questioned regarding the reasons for their objections, a significant number of them reported that they thought that it would be too expensive. The second reason, which is, in a sense, a corollary of the first, was that they just did not want it. The third most frequently reported reason was that they liked current television "as is."

This sequence of responses was found to hold true when the data were broken into sex groups. However, the third most frequent response reported for men was that they personally did not have time to watch television. This may have been another way of saying that they believed it would be too expensive for the amount of free time they had available.

REASONS FOR FAVORING PAY TELEVISION

Although the majority of the sample was not favorable to pay television, it seems worth while to report how the small sample who were in favor of it reacted to the questions regarding programming, time and cost.

Among the 118 people in the sample who indicated that they were in favor of pay television, the most frequent response was that this type of television would result in improved programming. The second and third most frequently reported reasons given were that they "did not like commercials" and that it was "convenient to have this alternative concurrent with free television." An analysis of the individual groups revealed that the most frequently reported reasons for favoring pay television among males, the response being almost equally divided between them, were the desire for better programs and dislike of commercials. The most frequent response among females was related solely to programming. Although the sample is too small to produce statistically reliable percentages, other responses frequently reported by both groups included a specific desire for good movies and a hope that this might improve the current commercial presentations of television.

Programs Desired

In order to substantiate the reasons given for preferring pay television and to uncover what people would like to see if such programming became available, a question was asked regarding program preferences. For the group favoring this form of television the most frequently cited program type would appear to be first-run movies. This was equally true among both males and females. The total response also indicated that Broadway shows and special sporting events followed in that order of preference.

A separate analysis by sex indicated that special sporting events were the second choice of men while Broadway shows were the second choice of the women. A third choice by women was ballet, which had absolutely no votes among the men. Musical programs were reported fourth by each of the groups. Interestingly enough, very few of those who were willing to pay for television were willing to pay for mysteries, drama, educational shows and westerns.

In order to pinpoint the attitudes of the respondents it was decided to ask "What one thing would you like to see every week on pay television?" The most frequently reported answer among women was opera while for men it was sporting events. However, when the two small groups were totaled together, musical shows and new movies were almost equally important in their acceptance.

Days and Times Favored

There was no outstanding preference for a particular day on which viewers would like to see pay television programs. Almost one half of the sample indicated that "any day" would be acceptable. The other days in sequence of preference were Saturdays, Sundays and Fridays. When the data were analyzed by sex groups, Saturday and Sunday were the second and third choices of the men and Saturday and Sunday were equally acceptable to the women.

The most frequently reported first choice among those who wished to see pay television was 8 p.m. to 11 p.m., and the second most frequently cited choice was 5 p.m. to 8 p.m. There were no significant differences in these preferences when the data were classified by sex.

Amounts to be Paid

The most startling response reported by those who were willing to pay to see a special program was that they had no idea what that amount should be. This was typical of both men and women, and evidently indicates the kind of confusion which surrounds the whole idea of pay television.

For those who had evidently made up their minds on this subject, the most frequently reported response was between $1.00 and $1.50 per program, with 50 cents to $1.00 running as a close second choice. When the data were reviewed in light of groupings by sex, the most frequently reported choice among women was 50 cents to $1.00 while the second was $1.00 to $1.50. The reverse was true for the male members of the sample. It should be pointed out, however, that most of the sample gave multiple responses, that is, in addition to not knowing, they suggested two or three price categories.

CONCLUSIONS

There is no doubt in the writer's mind that the whole subject of pay television is a confused issue in the eyes of the public. It would appear that this pilot study would shed very little light on the problem as it is in conflict with reports from other parts of the country.

It would also seem to this writer that the first important step should be a major study of the population living in the principal television areas of the United States. This could be undertaken by the Federal Communications Commission, which could employ the truly impartial and objective services of a geographically diverse group of universities or the Bureau of the Census. This should result in the first substantial measurement of total consumer reaction to this proposed type of programming. Heretofore, data have been fragmentary, and interested parties have publicized this new medium in a divergent number of ways which have made it difficult for the public to grasp the concept.

It would appear that the Federal Communications Commission made a correct decision in deciding not to rule on this issue for at least another year, but it also seems important that, before any ruling is made that the tenor of the opinions of the viewing population be studied together with the reactions of national and regional networks and independent television stations.

The Rise of State Debt in Massachusetts and Pennsylvania

by WILLIAM A. FORBES*

This article discusses the growth of state debt in Massachusetts and Pennsylvania during the past decade. It compares state problems, methods of financing, debt-created assets and the relative burden of state debt service.

SINCE the close of World War II, Massachusetts and Pennsylvania have each obligated their citizens to indebtedness of well over a billion dollars. From 1946 through 1957 the net long-term per capita debt of Massachusetts rose from $11.81 to $212.75 and that of Pennsylvania rose from $8.91 to $109.89. The per capita debt of Massachusetts is exceeded only by those of Florida and Delaware, while Pennsylvania ranks tenth among the 48 states; the average for all states is $82.55 per resident.[1]

In comparison with the federal debt of $275-$285 billion (presently about $1,650 per capita), these state figures may seem insignificant and unimportant. But there is a basic difference. When Pennsylvania entered the Union (as the second state to do so) on December 12, 1787, and when Massachusetts followed suit on February 6, 1788, they relinquished not only the right to declare and wage war, but also the right to create and control the money supply. Because of this, all of their expenditures must be met by taxation, either currently or later, and they cannot "roll over" their debts with impunity.

The public is fairly familiar with the status of the federal debt. Those who read the newspapers know in general that in recent years the debt has ranged between a high of about $279 billion in 1946 and a low of about $251 billion in 1949, that the current debt is about $275 billion and that it will probably reach $285 billion by the middle of 1959. They know that the national debt rose steeply during the 1930s, but that the major portion of the present federal debt was incurred during 1941-1945 for the financing of World War II.

What is not generally realized is the trend of state debt. In 1922 the total net debt of all the 48 states was $1.1 billion, approximately the same as today's indebtedness of either Massachusetts or Pennsylvania alone. At that time, Pennsylvania was virtually out of debt[2] and Massachusetts was obligated for only $76 million. Some increase in state debt occurred during the ensuing 20 years, but at the beginning of our participation in World War II in 1942, the total net long-term debt of all the 48 states was still only about $3.2 billion. At that time the debt of Massachusetts was $111 million and that of Pennsylvania, $290 million. During the War, most states actually reduced their indebtedness, the aggregate dropping, by 1946, to $2.4 billion. Massachusetts during the four years cut its debt to $84 million and Pennsylvania to $126 million. Since 1946, while the federal debt has remained relatively constant, state debt has increased more than fivefold, rising from an aggregate of about $2.3 billion to a 1957 total of about $13.5 billion.

Thus we see that, during the past 16

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[1] U. S. Department of Commerce, Bureau of the Census, **Compendium of State Government Finances in 1957,** U. S. Government Printing Office, Washington, D. C., 1958, p. 52. See also, The Tax Foundation Inc., **Postwar Trend in State Debt, a State-by-State Analysis,** New York, 1950, p. 26.

[2] Commonwealth of Pennsylvania, Committee on Continuation of the Tax Study, **The Debt of the Commonwealth of Pennsylvania and its Local Subdivisions,** A Report to the Joint State Government Commission of the General Assembly, December 16, 1943, p. 11.

TABLE 1

Total Long-Term Debt of the United States and The States of Massachusetts and Pennsylvania, Selected Years, 1922-1955

(millions of dollars)

Year	Federal	48 States	Massachusetts	Pennsylvania
1922	$ 22,963	$ 1,131	$ 76	$(nil)
1942	72,422	3,257	111	291
1946	269,422	2,353	84	126
1955	274,374	11,198	824	1,203

Source: The Tax Foundation, Inc., **Facts and Figures on Government Finance**, Ninth Edition, 1956-57, New York, 1956, pp. 184, 192-93.

years, there has been considerable divergence between the trends in federal as compared with state debt. We also see that, following the war, the states were in a relatively sound credit position from which to inaugurate programs of expansion and capital improvement.

THE PROBLEM

Why have the states borrowed so heavily during the postwar years?

During the long depression of the 'Thirties and during the period of World War II, the states were not in a position to undertake long-range improvement projects. As a result they were faced in 1946 by an accumulation of requirements for capital outlays in many fields such as transportation, education and welfare, and by burgeoning populations.

Highways, necessarily neglected during the war years, were badly in need of repair and expansion. The pent-up demand for automobiles brought some five to eight million new cars onto the roads annually. The population, increasing at a rate of about three million per year, called for new and larger school buildings, improvement in welfare and corrective institutions, more adequate flood-control measures, outlays for water and sewerage systems and recreational facilities. Finally, it was generally felt that something should be done by the states to reward the veterans who had been unable to participate in the civilian war prosperity.

Many of the states were faced, however, with constitutional restrictions on borrowing. Twenty states, of which Pennsylvania is one, require a constitutional amendment for borrowing. Twenty more require a popular referendum. Three states have minor procedural restrictions. Only five states have no constitutional restriction at all on the borrowing power of the legislature. Massachusetts is one of these five.[3]

Constitutional Debt Limitation

The Commonwealth of Pennsylvania, on January 1, 1874, adopted a revised constitution, one of the terms of which limited the allowable state debt to $1 million. Article IX, Section 4, reads as follows:

> "No debt shall be created by or on behalf of the State, except to supply casual deficiencies of revenue, repel invasion, suppress insurrection, defend the State in war, or to pay existing debt; and the debt created to supply deficiencies in revenue shall never exceed in the aggregate, at any time, one million dollars."

That figure is $1 million. Yet the Pennsylvania debt outstanding at the end of the fiscal year May 31, 1957, stood at about $1.2 billion.

There are two methods by which this constitutional debt limit (still embedded in the Pennsylvania State Constitution) has been exceeded: first, by constitutional amendments, voted upon for specific purposes by the people; second, by the creation of Authorities by the General Court.

In Pennsylvania the adoption of the constitutional amendment method originated with the amendment approved by the voters on November 6, 1923, as follows: "Provided, however, that the General Assembly, irrespective of any debt, may authorize the State to issue bonds to the amount of one hundred million dollars for the purpose of improving and rebuilding the highways of the Commonwealth." On November 7, 1933, there was voted an authorization of $50 million for a bonus to Pennsylvania

[3]The Tax Foundation, Inc. **Constitutional Debt Control in the States**, New York, 1954, p. 12.

veterans of World War I and an authorization of $10 million for toll bridges. At the same time there was voted a $25 million authorization for general expenses and $50 million for public building construction and many activities aimed at relieving unemployment. In 1949, $500 million of debt was voted for a bonus to veterans of World War II, and in November, 1957, another $150 million bonus to Pennsylvania veterans of the Korean engagement.[4]

In Massachusetts there is no constitutional limit to the borrowing power of the legislature, except for the provisions that the vote of the General Court must be by a two-thirds majority of each house and that the debt so voted must be for specific purposes. As we have seen above, Massachusetts during the years between World War I and World War II largely followed a pay-as-you-go policy. However, it did relatively little to expand its highways and its institutional plant, even though its credit was excellent and its modest amount of outstanding bonds enjoyed the highest financial ratings. As far back as 1888, it had incurred contingent debt for the benefit of certain towns and cities in the neighborhood of Boston and in 1894 it had been the first to issue highway bonds. These were of the general obligation type. The modern authorities were unknown then.

The "Authority"

The second method of incurring debt without exceeding constitutional debt limits, and (technically) without obligating the state for repayment of the debt, is by the device of the Authority. This practice has become popular since World War II among all three types of government, federal, state and local. Significantly, it has been employed to a major degree by states such as Pennsylvania which have been otherwise fettered by debt limitations. Through this method the legislature creates an "Authority." The March, 1958 issue of the **Business Review**, published by the Federal Reserve Bank of Philadelphia, describes the institution of the Authority as follows:

> "Authorities are curious organizations. They are not quite governments and they are not private businesses. They lie in a hazy, quasi area in between. . . . . Although born of government, they are not directly controlled by the electorate . . . . They build public projects using private money. They often operate public utilities, yet they are normally not regulated by public utility commissions. Authorities are different."[5]

The Authority creates debt which is not legally backed by the full faith and credit of the government, but which is free from income tax liability and which is serviced by specific revenue. This revenue may be from the collection of specific charges, such as tolls, or from rentals paid for the use of facilities out of taxes raised by the government which created the authority. That these debts are generally considered the moral obligation of the respective governmental bodies is indicated by their inclusion in the **Compendium of State Debts,** issued by the Bureau of the Census, U. S. Department of Commerce, and by the high rating given most of them by investor services. For example, both the Pennsylvania General Obligation Bonds and the Pennsylvania Turnpike Authority Revenue Bonds are rated "Aa" by Moody's **Municipal and Governmental Manual, 1958.** The Pennsylvania Committee on Continuation of the Tax Study in its formal report to the Joint State Government Commission of the General Assembly, in discussing authorities, said, on December 16, 1943,

> "These four agencies are authorized to create debt . . . . to be repaid out of the proceeds of their respective services. Legislation creating them specifically states that their debts are not legal obligations of the Commonwealth. However, **these bond issues are generally regarded as moral obli-**

[4]**The Pennsylvania Manual,** 1955-56, Vol. 92, p. 49.

[5]"Pennsylvania's Billion Dollar Babies, The Story of Our Mushrooming Municipal Authorities," **Business Review,** Federal Reserve Bank of Philadelphia, March, 1958, p. 8.

gations of the Commonwealth."[6] (Emphasis supplied).

Massachusetts has until recently made comparatively little use of the Authority. Its outstanding example is the Massachusetts Turnpike Authority, which sold $239 million of revenue bonds, the proceeds of which were used to create a 128-mile cross-state, east-west, toll highway. During its first year of operation, ending May 31, 1958, it failed to earn its interest requirements of $7.8 millions by a margin of almost a million dollars.[7] Massachusetts has also the Mystic River Bridge Authority, and the lately organized, but not yet functioning, Massachusetts Port Authority, which has been unable to issue bonds because of a governor's veto.

Pennsylvania, on the other hand, has adopted the instrumentality of the Authority probably more extensively than any other state, particularly at the local level. The best-known of these agencies is its Pennsylvania Turnpike Authority which operates successfully a 470-mile east-west, cross-state toll highway with a northeast extension. But more important is its General State Authority. **The Pennsylvania Manual**, describes it as follows:

> "The General State Authority is a public corporation and government instrumentality which was created by the Act of March 31, 1949 . . . . The Authority was created because of the constitutional limitation on the State's borrowing capacity." . . . . "It has the authority to construct, improve, equip and maintain sewers, public buildings, landing fields, armories, school buildings, dams, bridges, highways, tunnels . . . . The money to finance the projects is obtained through the sale of bonds, the principal and interest of which will be paid from rentals received from leases to the Commonwealth and paid from moneys appropriated for the purpose from time to time by the General Assembly."[8]

Other state authorities in Pennsylvania are the Public School Building Authority and the Highway and Bridge Authority.

In other words, Pennsylvania's Authorities perform many of the functions which the Commonwealth of Massachusetts performs directly through its departments and finances through general obligation bonds.

As of the end of the fiscal year 1957, the long-term indebtedness of state governments is shown in Table 2.

TABLE 2

Long-Term Indebtedness for All States and for Pennsylvania and Massachusetts, 1957

(millions of dollars)

State	Total	Full Faith & Credit	Non-guaranteed
All States	$13,522	$6,490	$7,032
Massachusetts	1,014	738	276
Pennsylvania .	1,202	322	881

Source: U. S. Department of Commerce, Bureau of the Census, **Compendium of State Government Finances in 1957**, U. S. Government Printing Office, Washington, D. C., 1958, p. 38.

These figures indicate the influence of constitutional debt limit, or the lack of it, on the type of borrowing in Massachusetts as contrasted with Pennsylvania.

SOME COMPARISONS — ABILITY TO PAY

At this point it may be well to explain why these two states have been selected for comparison. Both depend principally for their economic well being on manufacturing. Both are mature states. Both are characterized by relatively high densities of population, as indicated by the data in Table 3.

Also, both states are above the national average in per capita personal income. As of fiscal year 1956, the average personal income per capita for all 48 states was $1,940, while the figure for Pennsylvania was $2,008 (fourteenth in rank among the states), and for Massachusetts it was $2,206, (eighth in rank among the states).[9] Thus it is seen that both states are more able than the average to service a debt structure.

[6] Commonwealth of Pennsylvania, Committee on Continuation of The Tax Study, **op. cit.**, p. 12.

[7] **Wall Street Journal**, June 18, 1958, p. 18.

[8] **Pennsylvania Manual**, 1955-56, Volume 92, 1956, pp. 817-18.

[9] U. S. Department of Commerce, **Survey of Current Business**, August, 1957, p. 11.

TABLE 3
Some Economic Comparisons of Pennsylvania and Massachusetts

	Pennsylvania	Massachusetts
Area in square miles	45,045	7,867
Rank in nation ..	32	44
Population (1954) 10,779,000		4,954,000
Rank in nation ..	3	9
Density per square mile .	239.3	629.7

Source: The Council of State Governments, **The Book of the States, 1956-57,** Chicago, Illinois, 1958.

Both states compete vigorously to develop industrial enterprises. In 1956, Pennsylvania established the Pennsylvania Industrial Development Authority. This is a public corporation financed by state-appropriated funds and established to relieve communities in critical economic areas of part of the burden of financing industrial growth. Massachusetts fosters a number of New England Development Credit Corporations for somewhat similar purposes. A review and comparison of these activities in both states is published in the July, 1958 issue of **Business Review** by the Federal Reserve Bank of Philadelphia. Previously, in its issue of December, 1956, the **Business Review** published a study of the subject under the title, "The Interstate Stampede for Industry."

The aggressiveness with which Massachusetts competes for industry is vividly illustrated in a 56-page advertising supplement to the Sunday **New York Times** of May 18, 1958. This was sponsored by the Department of Commerce of the Commonwealth of Massachusetts. It is introduced by a message from Governor Foster Furcolo and covers manpower, capital resources, governmental climate and natural resources. In his message the Governor says, "Massachusetts is an industrial state, and the maintenance of a healthy climate for the growth and development of industry is of vital concern to me as its Governor, and to the vast majority of its citizens."

Much of the borrowing in both states can be attributed to the competitive urge.

PURPOSES OF DEBT

Veterans' Benefits. As was seen above, Pennsylvania has provided handsomely for its veterans. When on February 16, 1950, it issued $375 million of full faith and credit bonds for raising funds for payment of a bonus, it was responsible for the largest debt ever incurred at one time by any state or local government up to that date in United States' history.[10] As of 1957 its outstanding veterans' bonus debt of $278 million represented 23 percent of its total indebtedness and also represented 23 percent of the total indebtedness of all 48 states for veterans' bonus obligations. In contrast, as of 1957 the outstanding veterans' bonus debt of Massachusetts stood at $61 million, which represented about 6 percent of its total indebtedness and about 5 percent of the total indebtedness of all 48 states for veterans' bonus obligations.

In passing it might be noted that the veterans, following a war, as citizens and taxpayers of their respective states, are obligated to pay their share of their own bonus in taxes raised to service bonus-purpose long-term debt. A state which wished to reward its military personnel immediately and from the resources of its non-military citizens, might raise the funds by current taxation from which the veterans would be exempt.

Highways. The purpose for which the largest portion of outstanding state indebtedness has been incurred is that of highway construction. Of the $13.5 billion of state debt in 1957 more than one-half was for highways, of which some $5 billion represented state toll facilities and $2.75 billion, free access highways. The figures for Massa-

[10] **Post War Trend in State Debt, op. cit.** p. 8.

chusetts were $264 million for toll and $346 million for free-access highways. Together with authorizations for future indebtedness, highways comprise some two-thirds of total Massachusetts indebtedness. In Pennsylvania, as of 1957, the total toll-facility debt was $460 million and that for free-access highways was $64 million. In both states, Turnpike Authorities and their revenue bonds account for most of the bonded indebtedness for toll facilities.

Education. Education, while representing more than 13 percent of the outstanding debt for all 48 states, represented less than 1 percent in Massachusetts and just over 10 percent in Pennsylvania, as a reading of the formal record would indicate. However, both states lead in the field of education. They merely provide for it in ways which do not immediately appear to the casual reader of the statistics. Massachusetts includes its capital outlay for education in its general "Capital Outlay" program, going into debt currently at about $10 million per year for education. Both states count on local governments to raise funds for local educational facilities. Pennsylvania's debt incurrence for education is included in its General State Authority debt as well as the debt of the Pennsylvania State Public School Building Authority.

Other Purposes. In addition to the major problems of veterans, highways and education, the states required programs for many other purposes. Penal and other corrective institutions had deteriorated during the long period of the depression and war. Floods and hurricanes had necessitated measures for relief and control of future potential disasters. Increasing populations demanded expansion of water and sewerage systems and more adequate park and recreational facilities. Table 4 indicates, in general, the amounts expended on these other programs. For example, in the total of Massachusetts obligations there is an item of $141 million of bonded indebtedness which is the obligation of the State, but which is serviced by assessments on the 43 towns and cities comprising the Metropolitan District in and about Boston and which represents the construction of sewers, parks and a water system.

TABLE 4

Long-Term Debt Outstanding, Classified by Purpose For Massachusetts and Pennsylvania, 1957

(in millions of dollars)

State	Total	Veterans	Highways	Education	Other
All States ..	$13,522	$1,202	$7,335	$1,774	$3,211
Massachusetts	1,014	61	609	7	337
Pennsylvania	1,202	278	523	127	274

Source: U. S. Department of Commerce, Bureau of the Census, **Compendium of State Government Finances in 1957**, U. S. Government Printing Office, Washington, D. C., 1958, p. 39.

SERVICING OF THE DEBT

In its report to the Governor of Pennsylvania on May 29, 1953, the Tax Study Committee said,

> "Present taxes may be reduced where a pay-as-you-go financial policy is not followed, but future taxes are increased to meet interest charges and retire the debt as it matures. A considerable part of the future tax revenues must consequently be raised to finance the increasing debt-financed expenditures."[11]

Again, in its Second Report of January, 1955, the Committee warned of increasing burdens of debt service as follows:

> "Borrowing today means more taxes tomorrow. Borrowing also adds to the cost of services the interest charges and expenses of debt management. By borrowing, Pennsylvania has deferred current tax needs, but has created the need for higher taxes over a long period of years."[12]

These observations are borne out by the statement of Governor George M. Leader concerning the current budget.

[11]Commonwealth of Pennsylvania, Tax Study Committee, **The Tax Problem,** Harrisburg, Pennsylvania, May 29, 1953, p. 23.

[12]Commonwealth of Pennsylvania, Tax Study Committee, **The Tax Problem,** (Second Report of the Tax Study Committee), Harrisburg, Pennsylvania, January, 1955, p. 31.

TABLE 5

Relationship of Debt Service Costs to Total Expenditures for Pennsylvania, 1957-59

1957-59 Appropriations	$1,476,849,102
1955-57 Deficit	82,242,422
Total Expenditures	1,559,091,524
Interest and Sinking Fund	68,915,020
As a percent of expenditures	4.67%
General State Authority Rentals	31,000,000
As a percent of expenditures	2.10%
Total of Debt Service	$ 99,915,020
As a percent of expenditures	6.77%

Source: Tax Institute, Inc., **Pennsylvania Tax Problems in 1957,** Princeton, New Jersey, 1957, p. XXXI.

Pennsylvania operates on a biennial basis. The Governor in his message of February 5, 1957, to the General Assembly said,

> "The state's payments for debt service and authority rentals . . are binding contractual commitments. The combined cost of such debt service in the 1957-59 biennium will be $99,915,-020 — an increase of $4,270,000."

According to the Tax Institute, Inc., the relation of debt service to total expenditures in the current Pennsylvania biennium is about 6.77 percent. (See Table 5.)

During fiscal 1957 Massachusetts expended $22.5 million on interest and $46.5 million on retirement of long-term debt, for a total of about $69 million, while its tax revenues were $414 million.[13] The Massachusetts Federation of Taxpayers Associations, Inc., estimates that its Commonwealth will require between $60 and $75 million each year for the next eight years to service its full faith and credit indebtedness. During 1957 Pennsylvania paid about $30 million in interest and $67 million in retirement of long-term debt, while tax revenues were $985 million.[14]

TABLE 6

Comparison of Debt Service Costs to Tax Revenues for Pennsylvania and Massachusetts, 1957

(in millions of dollars)

	Total Tax Revenue	Total Interest on Debt	Long-term Debt Redeemed	Percent of Debt Service to Total Revenue
All States	$14,531	$351	$592	6.5%
Massachusetts	414	23	47	16.7
Pennsylvania	985	30	67	10.0

Source: **Compendium of State Government Finances in 1957,** Bureau of the Census, U. S. Department of Commerce, 1958, pp. 11, 37 and 40.

The relation of debt service to tax revenue for the fiscal year 1957 indicates that, whereas 6.5 percent of tax revenues in all 48 states was required for debt service, Pennsylvania required 10 percent and Massachusetts required nearly 16.67 percent.[15] (See Table 6.)

The increasingly urgent problem of debt service is indicated by the following remarks of John W. Ingram, Director, State Division, Pennsylvania Economy League, Inc.,

> . . . "While total general fund appropriations increased approximately one and one-half times in the past 10 years, combined appropriations for general obligation **bond debt service, authority rentals and subsidies have all but tripled."** (Emphasis supplied).
>
> . . . "one of the faster growing categories (of the budget) is that of debt service — including direct interest and sinking fund requirements for general obligation bonds, and equivalent rental requirements for authority-issued bonds . . ."
>
> "Whereas, in 1945-47, recurring debt service obligations represented only slightly more than one percent of the total general fund budget, ten years later these had increased about thirteen-fold and accounted for more than seven percent of the total. This reflects the war aftermath of the veterans' bond-financed bonus, and a remarkable shift from a virtual pay-as-you-go basis for financing capital

[13] U. S. Department of Commerce, Bureau of the Census, **op. cit.,** pp. 11, 37 and 40.

[14] **Idem.**

[15] **Idem.**

improvements to an almost complete borrow-and-build policy, utilizing the relatively new authority device."[16]

SUMMARY AND CONCLUSION

Since World War II both Massachusetts and Pennsylvania, like most of the 48 states, have spent more than they have taken in. As a result their debts have risen to more than a billion dollars each. To the people of Massachusetts, with about half the population of Pennsylvania, this means a per capita debt of about twice the magnitude of and a per capita burden of debt service more than double that of Pennsylvania. In both states per capita debt and per capita debt service is well above the average for all states. But per capita personal income in each state is also above the average for all states.

Massachusetts has incurred its debt largely through the issue of full-faith and credit bonds. Pennsylvania, except for the payment of the bonus to veterans, has relied largely on the device of the Authority and revenue bonds. Massachusetts has physical assets to show for about 94 percent of its indebtedness, Pennsylvania for about 77 percent. Both states have conducted their programs of debt incurrence in response to the postwar needs of expanding populations and industry. Their current and future problems are to tailor their capital outlays not only to their needs but also to their financial abilities. Massachusetts would appear to have more nearly reached its limit of ability than has Pennsylvania. However, by a greater use of the device of the Authority it might be able to postpone the pyramiding consequences of increasing debt for some additional years. In both states there are, it must be noted, large aggregates of authorized but unissued bonds which will probably add to total indebtedness in the years ahead.

A question before both states is whether they have tapped their tax resources fully without retarding growth of population and industry, because, whether debt is incurred directly or through an authority, borrowing must be met in the main and ultimately by taxation in one form or another. Such a question is beyond the scope of this study.

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[16]The Tax Institute, Inc., **Pennsylvania Tax Problems in 1957,** Tax Institute Conference, Philadelphia, Pennsylvania, January 30-31, 1957; Tax Institute, Inc., Princeton, New Jersey, pp. 73-75.

Resistance to Super-Scientific Management

by KARL H. STEIN*

This article analyzes the development of the increasingly important relationships between management and researchers in the behavioral and exact sciences. Some of the obstacles to be overcome are detailed, and positive steps which lead toward growth of a more constructive relationship are recommended.

PROFESSIONAL management, as one of its major tasks, has had to administer change. Spasmodically, for example, new technologies have had to be integrated into the production process. In accomplishing such changes the concept of social responsibility of the corporation not only to its owners but to customers, employees, suppliers, creditors and the public at large has called for skilled adaptations which would not undermine the basic profit-oriented entrepreneurial **elan.** Similarly, the required delegation of specialized functional responsibilities, without sacrifice of organized unity of purpose, has required a rare sense of proportion to produce creative integration among the functional groups pursuing sometimes competing objectives.[1]

The problem of keeping a sane balance has now assumed a new dimension. In a world of increasing technological and economic complexity, management has had more and more to call upon scientific specialists to aid in the difficult task of making decisions in the light of the lessons of experience and the grave consequences of plans for the future. These specialists range all the way from behavioral scientists in the fields of anthropology, psychology and sociology to "exact" scientists in the field of mathematics and the physical and engineering sciences.

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[1]**Cf.** "Maginot Line Thinking for High Management." **The Manager,** April 1958, pp. 249-55.

THE NEW DIMENSION

In this new dimension management will face problems similar to those encountered earlier. The modification of the corporation's relationship to the parties-at-interest has been primarily socially determined. Changing social values, resulting from a change in the balance of social power, first produced public objection to existing practices, then legislative enactments embodied the new sentiments in deterrent or prescriptive form.[2] The balancing and integrating of delegated functional responsibilities, on the other hand, has been internally determined by the limited span of effective executive control. The catalyst in this case has been budgetary planning and control. Major decisions which would affect all aspects of the business have had to be replaced by careful collation of data which were received from many sources and by welding them into alternative programs of action between which it became management's function to choose.[3]

The new dimension—management's relationship with scientists who are capable of applying new insights to the manage-

[2]Examples of this are to be found in the field of labor and securities regulation and more recently in the investigation of manufacturer-dealer relationships as evidenced, for example, by the required disclosure of the retail price ingredients in the automobile industry.

[3]Consider, for example, the case of a management which is contemplating investment in and installation of far-reaching automated production equipment. It faces the question of amortizing the expenditure and the effects of this on over-all return on investment. It must ask itself whether the added costs of model changeovers or changes in product mix are compensated by higher output ratios. Is this speeded-up mechanization capable of maintaining the quality level desired for the product? Will resultant more favorable cost structures open new markets and thus secure decisive competitive advantages? To what extent will they be offset by union pressure for wage increases rationalized from higher man-hour productivity? Will higher training costs (See J. R. Bright "Does Automation Raise Skill Requirements?" **Harvard Business Review,** July-August, 1958, **passim**) and transfers of displaced employees tip the balance unfavorably?

ment process—has been structured partly by external and partly by internal pressures. As a result of far reaching experimentation, especially in defense planning, scientific planning and decision making by electronic computation represent real possibilities for aiding in the solution of many types of management problems.[4] Similarly, behavioral scientists, for example, in the field of motivation research, have devised means of making positive contributions to an accurate appraisal of market behavior. Although no democratic government would consider forcing the employment of such techniques upon industry, environmental influences have lead and will continue to lead management to consider their adoption. With these now available, it has become management's task to accomplish their successful organizational integration for greater corporate effectiveness and efficiency.

Management has come a long way in understanding and being understood by the groups among whom it arbitrates and from whom it must draw vital contributions to operations for the sake of the corporation's prosperity. In management's relations with the parties-at-interest, consumer research and service have replaced the "public-be-damned" attitude, employee counseling has replaced blacklisting, collective bargaining, violent strikes and lockouts. Dividend distribution has been curtailed in favor of capital appreciation; corporate good citizenship has displaced fly-by-night profits.

In management's relations with the several functional divisions of the enterprise, specific functionally oriented managements have given way to more balanced viewpoints. Divisional interests have been more effectively integrated through more meaningful top policy formulation, management by committee and personnel rotation among the functions. At the same time, far reaching operational decentralization has multiplied the number and range of centers of administrative initiative, experimentation and control.

Management's communication with and receptivity to the new circle of scientific experts is as yet lagging behind its cooperation with and integration of conflicting viewpoints in the other two areas. Significant progress must and can be achieved in the new dimension.[5]

The major obstacles to integration of potential contributions by scientists to the managerial process, both from their and management's standpoints may be worth considering. These obstacles may then be compared with some of those which management has had to overcome in its dealings with other corporate parties to learn, if possible, some of the lessons which might be applied in this new dimension of relationships. This will lead to some recommendations as to what may be done to improve the present situation.

Management Obstacles

One obstacle to the use of scientific experts has been the "stand-pat" attitude which might be called administrative obstructionism. It springs from intrinsic motivational incompatibility. Research, by its very nature, must question old and test new ideas objectively. Thus, it militates against administrative inertia.[6] This is partly a matter of innovational

[4]See, for instance, J. W. Forrester, "Industrial Dynamics," **Harvard Business Review**, July-August, 1958, p. 37 ff.

[5]As the example from automation cited above shows, the typical unit of investment is becoming so sizeable and final that all possible foreseeable consequences of a decision must be taken into account in advance. The sheer multiplicity and relative importance to be assigned to relevant variables is such, however, that no one person or group of persons is capable of digesting them into a meaningful series of trial runs on paper in time to be of help to the decision maker. Operations researchers sometimes employing electronic data processing equipment may be able to find the desired short-cuts on this type of "management simulation." Progress made in the several branches of the behavioral sciences has resulted in significant insights into individual and group behavior and in techniques of sociometrics which can substantially improve the quality of decisions made in many areas.

[6]Cf. J. W. Newman, "Working with Behavioral Scientists," **Harvard Business Review**, July-August, 1958, p. 68.

sclerosis: few people can accept progress and change as a continuum. It also is partly a matter of ignoring research findings where they conflict with an accepted frame of reference or customary ways of doing things,[7] or where they appear to threaten the status or organizational integrity of individuals or groups. The difficulty is usually that some significant research finding may require a change in a company's basic strategy which involves not only broad policy modification but major reorganization as well.[8]

Internal politics has been the second major obstacle to the better use of research. Opposition springs from the feeling that the employment of research implies criticism of a phase of operations, or that, through its use, support is being sought for a different or "outside" viewpoint. In addition, all too frequently the obstacle to better integration stems from the organizational distance between the researcher and the decision maker. The researcher finds himself reporting to an organizational or functional level to which the basic problems underlying major decisions are not revealed. Thus, problems tend to be submitted to them in piecemeal fashion not conducive to a "total" approach.[9]

A fourth impediment to greater use of research has been found in the failure of decision makers and researchers to understand each other. Each tends to indulge in "gobbledy-gook" scarcely comprehensible to the other.[10] Another obstacle has been the failure of management to translate research findings into a program of action; many research reports gather dust instead of being used.

Researcher Obstacles

Obstacles on the side of the expert have been at least as frequent and as serious as those on the side of management. The opposite of management's stand-pat attitude has been the expert's acrobatism. In his ardor for the scientific method, the expert has often become unrealistic, thereby alienating management.[11]

Corresponding to internal politics as an obstacle to the use of research is factionalism among researchers. The fact that they often do not seem to agree puts considerable doubt on their "findings." If management creates organizational distance between itself and researchers, the latter match this by their own brand of professional snobbery, in which all but Ph.D.'s in the field are beneath serious consideration.[12]

Similarly, researchers as well as management personnel seem unwilling to deviate from the jargon esoteric to themselves. Finally, if research reports have remained unused, researchers should possibly have asked themselves whether

[7]For an illustration of this, see "Industrial Designers' Attack on Phony Obsolescence," **Business Week,** April 12, 1958, p. 118.

[8]For an illustration from the electronic computer field, see **Business Week**, June 21, 1958, pp. 70, 87 and 90. To illustrate: a primary producer of basic minerals and chemicals found that in selling to fertilizer producers the major avenue to greater customer loyalty was provision of help in doing effective market research. To accomplish this required major modifications in approach as well as organization.

[9]In a survey on current business practices relating to operations research conducted among natnonally known manufacturing companies by the writer in 1957-58, it was found that 50% of the respondent companies were using operations research in some form. The highest organization level of personnel dealing with operations research was reported as follows: 10% were supervisors, 40%, department managers, 10%, staff assistants to a senior executive, 20%, vice presidents. Since these represent the administrators of research, researchers themselves are even further removed from those engaged in top policy decision-making.

[10]In the survey on current business practices, previously cited, respondents' definitions of operations research were classified into four groups according to how closely they approximated adequate definitions. Thirty percent were classed as "totally adequate," 30% as "passable," only 20% as "adequate," and 20% as "superior." In a **Tide** magazine study reported in the **New York Times** of July 7, of 1,200 advertising executives only 5% said they "understand motivation research thoroughly." Thirty-three percent said they worked for companies that use it, while 63% said their organizations never use it.

[11]For an illustration from the electronic computer field, see **Business Week,** June 21, 1958, p. 90.

[12]**H. E. Krugman**, "What Kind of Managers Will Scientists Make?" **Management Review,** May 1958, p. 27.

they have interpreted their findings in such a way that they could form the basis for a policy decision, and, if not, should they not have sought to overcome this limitation.

A RECORD OF OBSTACLES OVERCOME

To what extent have such obstacles hobbled progress in management's relationships with the several corporate parties-at-interest and in integrating the work of the functional divisions of the business in the past? One could also ask, what can we learn from this record?

One may consider management's stand-pat antagonism to unions as outside agent provocateurs. In many cases it took the legalization of properly representative unionism under federal laws to induce management to enter a collective bargaining relationship.[13] In our economic system it appears unlikely that experts may be forced upon private business organizations by law. However, in the defense sector of the economy[14] and where public health and welfare are at stake, this state of affairs may already have been approximated.

Ford's black "Model T" is an example of "stand pattism" in merchandising. It gave way under the impact of competition. Many companies are probably using motivation and operations researchers because their competitors advertise that they do.[15]

Historically, the employee relations function was subordinated to the production department, a case of "stand pattism" in organizational balance. It took the advent of annual collective bargaining negotiations and the need for conforming with labor protection laws to raise the organizational stature of the personnel function to a level coordinate with other major business functions. Here again a lesson might be learned: as more outside institutions, both private and government supported, engage in research, which holds a potential benefit for business, management would seem to be well advised to keep its scientific manpower accurately apprised of its future plans and goals.

There has been (and still is) a good deal of politics or internal pressures in governing management's relationship with labor. Similarly, at budget time private empire builders jockey for financially favorable positions. Yet it is clear that good management practice in both cases has required a statesmanlike, judicial attitude which should be carried over into relations with researchers. The latter should be allowed to interpret their findings as they see the facts. But researchers must be given access to all of the facts.

The problem of organizational distance has beset management both in its relations with the several corporate parties-at-interest and in keeping a balance between functions. It is significant that functionalized staff work and direct communication have been the answer in both cases. To get closer to the customer, for instance, management employed marketing research to probe consumer preferences and used brand advertising to bring the sales message to the mass market beyond management's span of direct distribution control. The same solutions can and should be applied to the new dimension of management's relationship with research; the vertical organizational gap between top management and the expert can be reduced by suitable interjection of staff positions and, perhaps more importantly, by good organizational indoctrination of research manpower and by providing opportunities for it to express its viewpoints effectively.[16]

The barrier of understanding is rarely absent where groups with different technical, organizational, ideological and/or

[13]The clothing industry with an unsurpassed record of industrial peace represents a notable exception.

[14]Cf. J. S. Livingston, "Decision Making in Weapons Development," **Harvard Business Review**, January-February 1958, p. 127 f.

[15]Cf. **Business Week**, June 21, 1958, p. 72.

[16]H. E. Krugman, **op. cit.**, p. 28.

motivational backgrounds meet. However, corporations are beginning to learn to communicate effectively with their several publics in language at once simple, without sounding condescending, sincere, without being soppy. In communicating with experts, management may have withheld information for fear of giving them material with which to point out present inefficiencies. Or management may have shown impatience with "professors" who find solutions with typical "beginners' luck."[17]

The action gap has typified many attempts by management to integrate the several functions of business. Committee organization may preclude action. "Concurrent" responsibility may prove a thin veneer for lack of it. However, although attempts at integration may produce slower results than unilateral dictation, they may improve the quality both of the decision and its implementation. The problem is not for management to abdicate thinking while letting the expert make the decisions. Rather it must be "to find a way by which the specialist's and the executive's kinds of knowledge can be joined."[18]

Turning now to obstacles raised by the parties with whom management has had to structure satisfactory relationships, we find an illustration of the experts' acrobatism in the former firebrand Marxism of some labor leaders, the fanaticism exemplified in some stockholder squabbles and dissension among functional executives. The experts' assumption of professional distance is matched by arms' length bargaining by unions. A close parallel to their semantic occultism is found in promoters' jargon. Their apparent impracticality may resemble some accounting procedures. In each of these cases, viable relationships with management have been developed by the parties putting their heads together for the purpose of unifying their views and by evolving a language which built bridges instead of creating chasms.

THE ROAD TO IMPROVEMENT

Stand-pat attitude. It is essential to analyze honestly the roots of this attitude. In most people the drive for security is stronger than the desire for adventure. Resistance to the possible implications of a research project or research findings will be masked by all kinds of rationalizations: "We are too small." "This is too glib, mechanistic." In the absence of such analysis, a company may find itself later trying to catch up with the new technique under the pressure of competition. But at that time the preparatory work of structuring a proper integration between administrators and experts will have yet to be completed. It would seem better to proceed on the premise borne out in many human relations studies that people do not resent change so long as they are allowed to contribute to it.[19] Let those who might have reason most to fear the innovations brought by the new men of science, participate in every stage of the preliminary discussions on the proposed project. Their practical knowledge will provide invaluable insights for the researchers and take-off points for mutually exploratory exchanges of ideas. By seeing their day-to-day problems in a broader context, line executives are stimulated to creative thinking.

Internal politics. Despite honest aspirations for a more participative form of management and despite real progress in the direction of industrial rationalization, administration ultimately involves skill in "the art of the possible," as politics has been called. If the expert were given full sway, many organizations could not survive. Application of

[17]For an illustration of this from the industrial design field, see **Business Week**, April 12, 1958, p. 120.

[18]H. C. Metcalf and L. Urwick, editors, **The Collected Papers of Mary Parker Follett**, Harper Brothers, N.Y., 1940, p. 256.

[19]Cf. F. J. Roethlisberger and W. J. Dickson, **Management and the Worker**, Harvard University Press, Cambridge, 1939, **passim.**

the expert's perfect logic or penetrating insight must be tempered by practical judgment as to what the group is willing and able to comprehend and accept.

Organizational distance. In most business organizations the expert or researcher is located some distance from those who make top policy. It is essential, however, if these scientists are to make their contribution, for top management to take an active interest in their endeavors. Such an attitude will help to convert those in middle and lower management whose organizational behavior will likely have to undergo the greatest modification as a result of their contributions.[20]

Another suggestion in this same area is to encourage close informal contacts between line personnel and the researchers, whether the latter are employees or outside consultants. Experience shows that these, more than ponderous reports, help to "sell" the research to those who are supposed to apply it. Actually the organizational distance between administrator and expert can be turned to good account: it can give them both the opportunity for alternating between involvement and detachment which can be so fruitful for creative effort.[21] It should provide a relationship which is less authoritarian than purposive.[22]

The language barrier. The language of management is action, the language of researchers, symbols. Despite its essentially verbal, order giving environment, management has been relatively slow to learn to conduct effective communication with those not on its payroll or for whom being listed on its payroll represents a minor value in life. Perhaps management should permit itself more open communication-through-action, with researchers. To understand (but not necessarily approve of) the language of action, researchers must be given opportunities for fostering informal contacts with management, for seeing it "at work."

As for researchers making themselves understood, nothing could be worse than a condescending attitude. Proper presentation of research techniques and findings is often as vital to their reception as the techniques and findings themselves. They must be shamelessly "sold" in language designed to overcome specific resistances to the new and untried.

Action gap. Many are the prescriptions for translating expert advice into a program of action.[23] Perhaps one problem here is that the expert's advice may be the program of action; it may go even deeper and try to revamp an entire managerial philosophy. Today we must therefore "find a method by which advice does not coerce and yet enters integrally into the situation."[24] This is not a matter of treading softly, nor one of diplomacy. Rather, executives must become inured to a research orientation, to watching for things to research. The use of research in decision-making must become routinized. Line personnel must be called in on every step of a new research program so that they can feel themselves to be a part of its fruition in policy and action.

Acrobatism. The steps the scientists can take to facilitate cooperation with management are many. They need not, by any means, give up their desire for exploring the frontiers of their science to make their contributions palatable to the administrator. But they must not become impatient with the rate at which their contributions are accepted by management and by the organization through which it works. This must remain management's decision in the

[20]Cf. J. W. Newman, **op. cit.,** p. 72.

[21]Cf. W. J. J. Gordon, "Operational Approach to Creativity," **Harvard Business Review,** November-December, 1956, p. 42.

[22]Cf. L. B. Moore, "How to Manage Improvement," **Harvard Business Review,** July-August, 1958, p. 77. "To make a product . . . lends itself to direction and control. (The job of making it better) . . . does not."

[23]See, for example, J. W. Newman, **op. cit.,** p. 74. See also L. B. Moore, **op. cit.,** p. 83.

[24]H. C. Metcalf and L. Urwick, **op. cit.,** p. 255.

light of many factors both tangible and intangible.

Factionalism. Scientists cannot give up dissent. But differences in viewpoint need not become internecine. They should stimulate, not humiliate. They should be explained, not exploded on pain of ruining the laymen's interest and understanding.

Professional distance. There are positive as well as negative sides to maintaining distance. Certainly the scientist needs to preserve scientific detachment and objectivity. Yet if his advice is to be heeded, he must learn to break through the barrier which arises between him and his audience as a result of differences in background. He cannot become embroiled in the atmosphere of decision-making; but he must learn to breathe it so that his findings become intelligible in that context.

Impracticality. This applies to the apparent impracticality of the scientist's techniques or findings. Yet he must retain speculative vision; he must dream. For if he does not, who will? Visions, speculations and dreams can be communicated in a way that arouses the fascination of practical men. For did not they in their earnest quest for improvement open the door to the visionaries in the first place?

CONCLUDING OBSERVATIONS

It has always been professional management's task to arbitrate between competing groups and conflicting pressures, and to administer change. Rapid progress in the exact and the social sciences has opened up a new dimension in the performance of this task. The new insights and methods can make valuable contributions to the management process. But there are many obstacles to be overcome. On the side of management there is a natural resistance to change which might undermine long-cherished ideas and practices. On the side of the expert there is a scientific fervor for change.

Management has had to restructure its relationship with other contributors of services to the corporation in the past. It has learned to balance the claims of the several corporate parties at interest—owners, customers, employees, suppliers, creditors and the public at large—under pressure of a changing social morality. Management has learned how to delegate major functional responsibilities and how to keep them effectively coordinated and oriented toward a common purpose. These two sets of relationships were beset with difficulties similar to those encountered in the new dimension and these experiences give hope that fruitful cooperation can be achieved between researchers and administrators.

Profit Realization Through Charitable Contributions

by JACK E. GELFAND*

This note presents some details on the after-tax costs to individuals of making contributions to qualified charities.

THE old saw, "It's better to give than to receive" has been modified by the tax laws[1] to read, "It's better to give than to sell." This, however, is only true if the giving takes place under the right circumstances. Contributions to charitable organizations up to 30 percent of adjusted gross income may be tax-deductible, provided that at least 10 percent of adjusted gross income is donated to churches, schools or hospitals. While the amount of allowable deductions increases with the donor's adjusted gross income, the net cost (cost after taxes) of each dollar of contribution decreases as a result of the progressivity of the tax rates.

The following tabulation shows the after-tax cost of $1,000 of deductible contributions to donors in selected taxable income brackets.

Taxable Income	Marginal Tax Rate	Net Cost of $1000 Contribution
$ 5,000	26%	$740
9,000	34	660
13,000	43	570
17,000	50	500
20,000	53	470
30,000	62	380
40,000	69	310
50,000	72	280
60,000	75	250
70,000	78	220
80,000	81	190
90,000	84	160
100,000	87	130
150,000	89	110
200,000	90	100
201,000 (and up)	91	90

[1]Internal Revenue Code of 1954, Section 170; U. S. Treasury Regulations 39.23(0) - 1(g).

Giving cash contributions to charitable institutions may seem to be a bargain to individuals in the upper tax brackets. However, giving property contributions to charitable organizations may prove to be more profitable, under certain circumstances, than if the property were sold.

In a case where property has appreciated in value or has been depreciated over a period of years so that the value basis (for tax purposes) of the property is very small compared with its fair market value, it is possible for the owner to realize more money by donating the property to a qualified charitable institution than by selling it for cash. To be able to receive an absolute benefit from donating this property, the donor would have to be in a marginal tax bracket higher than 75 percent. However, even donors in lower tax brackets may find that donations of property, the values of which have appreciated, to charities of their own choosing may be made at astonishingly low out-of-pocket costs to them after taxes are deducted.

The great advantage of donating appreciated property lies in the fact that if the property were sold, a 25 percent capital gains tax is incurred on the difference between the selling price and the value basis of the property. However, if the property is given away, no capital gains tax is paid on the appreciated value of the property. However, the entire value (fair market value) of the donated property may be deducted from what would otherwise be taxable income. This is one case where the taxpayer may eat his cake and have it.

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For the purpose of illustrating this point the following example has been prepared:

Mr. Jones has taxable income of $100,000. He bought some property 20 years ago for $15,000. Over the 20-year period, he deducted for depreciation $10,000, leaving him with a value basis of $5,000. The fair market value of his property has appreciated to $30,000.

Case 1. He sells his property.

He realizes a capital gain of $25,000 which is taxable to the extent of $6,250 or 25 percent. After taxes, he gains $18,750. He has other income of $100,000 on which he has to pay a tax of $67,320, leaving him with $32,680 plus $18,750 or total of $51,430.

Case 2. He donates his property to a qualified charity.

In this case, $30,000 may be deducted from his otherwise taxable income of $100,000. The tax on $70,000 is $34,320. After taxes, the $100,000 of income is worth $65,680. However, the $5,000 of original basis value of the property which was given away must be deducted from the net income, yielding a net figure of $60,680. This produces a net income, however, which is $9,250 more ($60,680—$51,430) than if the property had been sold.

Philadelphia Business Index

The September 1950 issue of the Bulletin presented a new index of general business conditions in the City of Philadelphia. This series, prepared and since maintained by Robert T. Kline, was designed to reflect economic activity exclusively within the boundaries of the City of Philadelphia. It was originally based upon a combination of statistical data representing (1) industrial electric power sales; (2) indexes of employment and employee-hours; (3) department store sales[1]; (4) bank debits[2]; and (5) total construction. Because the method of reporting certain data is under revision by the originating agencies, the change in average weekly hours worked and the monthly change in total employment in the Philadelphia metropolitan area, both prepared by the Department of Research of the Federal Reserve Bank of Philadelphia, have been substituted for (2) above. This is a temporary expedient to maintain continuity of the index. The original data series will be restored after revision.

The following table presents the index for the years 1939 through 1957, and by month from September, 1957.[3]

Index of General Business Conditions, City of Philadelphia, 1947=100

Year	Index	Month	Index
1939	73	1957	
1940	77	Sept.	136.2
1941	96	Oct.	133.4
1942	99	Nov.	130.0
1943	106	Dec.	127.0
1944	106		
1945	98	1958	
1946	100	Jan.	124.4
1947	100	Feb.	124.1
1948	103	Mar.	123.0
1949	97	Apr.	124.0
1950	108	May	124.6
1951	111	June	125.9
1952	111	July	127.0
1953	119	Aug.	127.5p
1954	119	Sept.	128.0e
1955	124		
1956	128		
1957	130		

p=preliminary

e=estimated. Based on currently published weekly indicators.

[1]The revised index of Department Store Sales, published by the Federal Reserve Bank of Philadelphia, has been used in the composite index since October, 1951. Beginning September, 1957, the new seasonally adjusted Department Store Sales series (1947 = 100), published by the Philadelphia Federal Reserve Bank, has been used.

[2]The revised Wholesale Price Index, all commodities, published by the BLS, is used beginning January, 1952 as a deflationary index for the Bank Debit Series.

[3]Kline, Robert T., "A Measurement of General Business Conditions in the City of Philadelphia." **Economics and Business Bulletin,** Temple University School of Business and Public Administration, Philadelphia, Pa., September, 1950, pp. 33-40.